

What is claimed is:

1. A method of continuously producing a plurality of printed and activated time dependent labels, comprising:

5 providing a web having a plurality of inked substrates thereon, each substrate having a migrating ink pattern printed on a surface of the substrate,

providing a transfer printer having a first ribbon means for applying a timing layer through which the migrating ink bleeds after a predetermined period of time, and a second ribbon means for printing variable data,

10 continuously feeding the web of inked substrates through the printer, wherein each inked substrate passes sequentially under the first ribbon means and then the second ribbon means,

activating the first ribbon means to apply the timing layer to a portion of the printed surface of each inked substrate thereunder to produce a coated substrate, and

activating the second ribbon means to print the variable data information on each coated substrate thereunder,

15 whereby a plurality of activated time dependent labels having variable data information printed thereon are continuously produced.

2. A method of continuously producing a plurality of printed and activated time dependent labels, comprising:

20 providing a web having a plurality of inked substrates thereon, each substrate having a migrating ink pattern printed on a surface of the substrate,

providing a transfer printer having a ribbon means that includes a first ribbon portion for applying a timing layer through which the migrating ink bleeds after a predetermined period of time, and a second ribbon portion for printing variable data,

25 continuously feeding the web of inked substrates through the printer, wherein the first and second ribbon portions pass sequentially over each inked substrate,

activating the first ribbon portion to apply the timing layer to a portion of the printed surface of the inked substrate thereunder, to produce a coated substrate, and then

activating the second ribbon portion to print the coated substrate with the variable data

information,

whereby a plurality of activated time dependent labels having variable data information printed thereon are continuously produced.

5 3. The method of Claim 1, wherein the printer is a thermal transfer printer.

4. The method of Claim 2, wherein the printer is a thermal transfer printer.

5. The method of Claim 1, wherein the timing layer further comprises a clear enhancement layer.

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6. The method of Claim 2, wherein the timing layer further comprises a clear enhancement layer.

7. The method of Claim 1, wherein the feeding of the web, activating of the first and second ribbon means and the variable data information are controlled by a computer.

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8. The method of Claim 2, wherein the feeding of the web, activating of the first and second ribbon portions and the variable data information are controlled by a computer.

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9. The method of Claim 1, wherein the migrating ink pattern is printed on a dark background on the substrate and the variable data information is reverse printed on the coated substrate.

10. The method of Claim 1, wherein the migrating ink pattern is printed on a dark background on the substrate and the variable data information is positive printed on the coated substrate.

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11. The method of Claim 2, wherein the migrating ink pattern is printed on a dark background on the substrate and the variable data information is reverse printed on the coated substrate.

12. The method of Claim 2, wherein the migrating ink pattern is printed on a dark background on the substrate and the variable data information is positive printed on the coated substrate.

13. The method of Claim 1, wherein the timing layer is thermoplastic and is applied to the substrate by
5 heating the layer and contacting the layer with the substrate to thermoplastically adhere the layer to the substrate.

14. The method of Claim 2, wherein the timing layer is thermoplastic and is applied to the substrate by
heating the layer and contacting the layer with the substrate to thermoplastically adhere the layer to
10 the substrate.

15. The method of Claim 1, wherein the timing layer has a pressure sensitive adhesive thereon and is applied to the substrate by contacting the layer with the substrate to adhere the layer to the substrate.

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16. The method of Claim 2, wherein the timing layer has a pressure sensitive adhesive thereon and is applied to the substrate by contacting the layer with the substrate to adhere the layer to the substrate.

20 17. The method of Claim 1, wherein the timing layer has a first co-adhesive thereon and the substrate has a second co-adhesive thereon that reacts with the first co-adhesive, and the timing layer is applied to the substrate by contacting the layer with the substrate to adhere the layer to the substrate.

25 18. The method of Claim 2, wherein the timing layer has a first co-adhesive thereon and the substrate has a second co-adhesive thereon that reacts with the first co-adhesive, and the timing layer is applied to the substrate by contacting the layer with the substrate to adhere the layer to the substrate.

19. The method of Claim 1, wherein the substrate has an adhesive thereon and the timing layer is applied to the substrate by contacting the layer with the substrate to adhere the layer to the substrate.

5 20. The method of Claim 2, wherein the substrate has an adhesive thereon and the timing layer is applied to the substrate by contacting the layer with the substrate to adhere the layer to the substrate.

10 21. A method of continuously producing a plurality of printed and activated time dependent labels, comprising:

providing a web having a plurality of inked substrates thereon, each substrate having a migrating ink pattern printed on a surface of the substrate,

15 providing a transfer printer having a first ribbon means for applying a timing layer through which the migrating ink bleeds after a first predetermined period of time, a second ribbon means for applying another timing layer through which the migrating ink bleeds after a second predetermined period of time that differs from the first predetermined period of time, and a third ribbon means for printing variable data,

20 continuously feeding the web of inked substrates through the printer, wherein each inked substrate passes sequentially under the first ribbon means, the second ribbon means and the third ribbon means,

activating the first ribbon means to apply the timing layer to a portion of the printed surface of each inked substrate thereunder to produce a coated portion of the substrate,

activating the second ribbon means to apply the timing layer to another portion of the printed surface of each inked substrate thereunder to produce another coated portion of the substrate, and

25 activating the second ribbon means to print the variable data information on a portion of the coated substrate thereunder,

whereby a plurality of activated time dependent labels, each having variable data information printed thereon and two predetermined periods of times for expiration, are continuously produced.

22. A method of continuously producing a plurality of printed and activated time dependent labels, comprising:

providing a web having a plurality of inked substrates thereon, each substrate having a migrating ink pattern printed on a surface of the substrate,

5 providing a transfer printer having a ribbon means for applying a timing layer through which the migrating ink bleeds after a predetermined period of time, and for printing variable data,

continuously feeding the web of inked substrates through the printer, wherein the ribbon passes over each inked substrate,

activating the ribbon to simultaneously apply the timing layer to a portion of the printed surface
10 of the inked substrate thereunder to produce a coated substrate and to print the coated substrate with the variable data information,

whereby a plurality of activated time dependent labels having variable data information printed thereon are continuously produced.

15 23. The method of Claim 22, wherein the coated substrate is reverse printed with variable data.

24. A ribbon for a thermal transfer printer comprising a carrier ribbon having thereon along the length of the carrier ribbon a plurality of first ribbon portions for applying a timing layer through which a migrating ink bleeds after a predetermined period of time, and between each first ribbon portion a second ribbon portion for printing variable data.

25. A ribbon for a thermal transfer printer comprising a carrier ribbon having thereon along the length of the carrier ribbon, a timing layer through which a migrating ink bleeds after a predetermined period of time, and a layer for printing variable data.

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26. A ribbon for a thermal transfer printer comprising a carrier ribbon having thereon along the length of the carrier ribbon, a timing layer through which a migrating ink bleeds after a predetermined period of time, and a clear enhancement layer.